Available online at www.sciencedirect.com

SciVerse ScienceDirect

Procedia - Social and Behavioral Sciences 46 (2012) 2020 – 2024

Procedia
Social and Behavioral Sciences

WCES 2012

Comparison of the faculty of education students' critical thinking disposition

Hakan Turan[a] *, Hakan Kolayis[b] Yildiz Oztan Ulusoy[c]

[a]*Kocaeli University Faculty of Education, Kocaeli, 41380 Turkey*
[b]*Sakarya University School of Physical Education and Sports, Sakarya, 54187, Turkey*
[c]*Kocaeli University Faculty of Education, Kocaeli, 41380 Turkey*

Abstract

The purpose of the research is to compare critical thinking disposition of the students in the faculty of education, Turkish and Mathematics teaching. The sample is 194 randomly chosen first and last year students from Kocaeli University and Sakarya University education faculties. As a means for data gathering "California Critical Thinking Disposition Inventory" developed by Facione, Facione and Giancarlo (1998), adapted to Turkish by Kökdemir (2003), is used. In conclusion; it occurs that the students' critical thinking disposition do not significantly vary in grade levels ($p>0.57$, $t= 0.59$) and gender ($p>0.15$, $t= 1.47$), but vary in departments ($p<0.00$, $t= 2.82$). Accordingly, the training is suggested to be enriched by the activities that improve students' critical thinking disposition.

Keywords: Critical Thinking Disposition, Teacher Training, Trainee Teachers

1. Introduction

In the last century, it was believed that data should be transferred to individual. As a result of this rather than students were dealt with as productive and active element, they were passive, so in the position where they memorized the subjects given. Nowadays it is accepted that information is discovered by individual. In this case student is not a memorizer of given information but is a searcher and explorer of the information. Therefore instead of teaching, now learning is stands out, education has become student centered (Aydın, 1993). In our age, individual is expected to be problem solver, do critical thinking and be creative. Information age individual should not be the one that store the information in mind but should be the one that produce new information and use this produced information in his or her daily life. According to Kürüm (2003, 149) also the aim of an education system matching to this idea, is to educate individuals that constantly think, ensure the both individual and social development by implementing those thoughts into life in the most appropriate way. And this shows the necessity to significantly give way to critical thinking teaching activities in schools. Chaffee (1994), states that gaining the ability to critical thinking will help individuals to define the aims of his or her life, produce solutions to reach the goals and use the produced solutions.

* Hakan Turan. Tel.: +9-262-303-2429
E-mail address: hturan@kocaeli.edu.tr

 doi:10.1016/j.sbspro.2012.05.421

1.1. Critical Thinking

Criticism: is a matter of analyzing, judging and evaluating a situation, a phenomenon, an attitude or an event in terms of consistency, accuracy, validity and reliability and generally it can be suggested that in all sorts of thinking there are certain extends of criticism (Kazancı, 1979, 38; Şahinel, 2006, 123).The concept of critical means to evaluate anything in positive and negative aspects (Kaya, 1997). Ennis defined the critical thinking as focusing on deciding on what is done or believed (Biesta and Stams, 2001, transferred from 59 Koray, Yaman and Altunçekiç, 2004). According to Ennis (1991) students should gain the ability of thinking an event in a wide angle and using the knowledge of another field while solving a problem in a field. In information society, students must have information about different discourses even if restricted and view them critically. Halpern (1996) defines the critical thinking as "using the cognitive skills or strategies which increase the possibility of intended behavior. " Beyer (1988) deciding on the value and accuracy of anything, and Paul (1988, 49) "drawing conclusions by observation and information".

1.1.1. Critical thinking process

According to Ennis (1991); critical thinking occurs in three stages. Firstly critical thinking starts with a problem by interacting with other people and environment, secondly reasoning starts up by contacting with the information gained before, inference is made by the ways of induction, deduction and decision making and finally decision is made concerning what is to be believed or not. In leaning-teaching process while direct teaching, depends on retrieving information from teacher doesn't facilitate gaining the ability of critical thinking; student participation facilitates the development of critical thinking ability *(Tiwari and others 2006).*

Ministry of Education (MEB) underwent a change in programs of the first stages of primary education with the reform actions that they started in 2000. In this extent the programs of Turkish, Mathematics, Social Sciences, Social Studies and Science (with the name of Science and Technology) have been developed all over. From 2005-2006 academic year new programs that were piloted in 2004-2005 academic year, have started to be applied in all schools. This curriculum not only doesn't reject other learning theories but also gives weight to constructive approach teaching (MEB, 2005, 13). In constructive teaching environments; authentic situations, authentic problems, students' studies in corporation, organizing their own activity rows and study lengths, participating actively to critical thinking and discussion are suggested to be facilitated (Kerka, to 1997, adapted from 1 Brown, 1998: 8). For effective teaching teacher should know how students learn and develop, arrange activities that will support their intellectual, social and individual development, apply different teaching strategies to encourage them for critical thinking, problem solving and development of performance skills (MEB, 2002, 23). According to Şahinel (2006) by adapting critical thinking in lesson plans teachers may facilitate their students' being capable of the subject area, understanding the subject area by thinking clearly, completely and correctly and using the acquired information in their daily life. Also in the sources (MEB İlköğretim Kurumları Yönetmeliği, 2003; Öğretmenlik Mesleği Genel Yeterlilikleri Taslağı, 2005; Sınıf Öğretmeni Özel Alan Yeterlikleri, 2008) published by MEB it is emphasized that teachers must adopt the critical and creative thinking and improve students' disposition in problem solving.

When qualification to develop critical thinking disposition as ministry expects from teachers, is considered it can be said that the critical thinking disposition of the trainee studying students in education departments gains importance. The purpose of this study; is to compare the critical thinking disposition of the students studying in education faculties departments of mathematics and Turkish teaching according to gender, department and grade levels. To achieve this goal the following questions are tried to be answered. The critical thinking disposition of the studying students in Mathematics and Turkish teaching departments,

- Does it vary in gender?

- Does it vary in the departments they study in?
- Does it vary in their grade levels?

By answering the previous questions the trainee students' critical thinking disposition can be presented in terms of different factors.

2. Method

2.1. Participants and procedures

A research is a descriptive study. As the intention is to compare the trainee students' critical thinking disposition in terms of different factors in the research, comparative kind of relational screening model is used. The research phase consists of the studying trainee students in maths and Turkish teaching departments in education faculties of Kocaeli University and Sakarya University, and sample consists of a total 194 randomly chosen first and last year studying students in 2010-2011 academic year. The numbers and percentages of participant students' gender, department and grade levels are given in Table 1.

Table 1: Student numbers according to gender, department and grade levels.

	Department		**Gender**		**Grade Level**		**Total**
	Turkish	Mathematics	Female	Male	1st Grade	4th Grade	
Number	96	98	130	64	114	80	194
Percentage	49.5	50.5	67	33	58.8	41.2	100

According to the data given in Table 1, the participant students are 49,5 % Turkish teaching, 50,5 % mathematics teaching, 67% women, 33% men and 58,8% 1st Grade, 41,2% 4th grade.

2.2. Instrumentation and data analysis

In the research in order to identify students' critical thinking disposition as a means of data gathering shorten Turkish version of "California Eleştirel düşünme becerisi Ölçeği" (The California Critical Thinking Disposition Inventory) developed by Facione, Facione and Giancarlo (1998), adapted to Turkish by Kökdemir (2003), is used. The California critical thinking disposition inventory is used to evaluate the individual's level of the critical thinking. In the measure there are seven sub-dimensions including searching for truth, catholicity, analyticity, regularity, self confidence, inquisitiveness, maturity and 75 items. In the shortened Turkish version as a result of factor analysis for process of adaptation to Turkish there are six sub-dimensions and 51 items. 51 is the lowest point, 255 is the highest point can be got from the measure. With the independent groups t-test is used in analysis the data for the purpose of comparing the descriptive statistical techniques and critical thinking disposition according to factors of department, grade level and gender.

3. Findings

In Table 2 the t-test results related to whether the critical thinking disposition of the students varies in gender, department and grade levels are indicated.

Table 2. Results of independent sample test for the comparison of students' critical thinking disposition by their genger, department and grade level

Variable	İndicator	Mean	Std. Error	df	t	p-value
Critical Thinking Disposition By Gender	Female	204.81	21.22	192	1.47	0.15
	Male	200.09	20.91			

Critical Thinking Disposition By Department	Math Turkish	207.50 199.09	17.56 23.57	192	2.82	0.00
Critical Thinking Disposition By Grade Level	First year Last year	204.01 202.16	19.68 23.23	192	0.59	0.57

According to information from Table 2; generally students' critical thinking disposition is above the average, in high level but not very high level. It has been occurred that students' critical thinking disposition doesn't significantly vary in grade levels ($p>0.57$, $t= 0.59$) and gender ($p>0.15$, $t= 1.47$), but vary significantly in departments ($p<0.00$, $t= 2.82$).

4. Conclusion and Discussion

From the results of this research where the critical thinking disposition of the Kocaeli University and Sakarya University education faculty maths and Turkish teaching departments studying students is compared, it occurs that the trainee students' critical thinking disposition;

- Doesn't vary significantly in gender,
- Doesn't vary significantly in grade levels,
- Do vary significantly in departments that they study, in favour of mathematics.

The results of this research shows similarities with the studies done by Dündar (2009), Gelen (2002), Ekinci (2009) ve Şen (2009) in terms of critical thinking disposition not varying in gender. Shows similarities with the studies done by Gülveren (2007), Ekinci (2009) in terms of critical thinking disposition not varying in grade level and shows similarities with the studies done by Dündar (2009) in terms of critical thinking disposition varying in grade level. Shows similarities with the studies done by Gülveren (2007) in terms of critical thinking disposition varying in terms of departments and shows similarities with the studies done by Gelen (2002) and Ekinci (2009) in terms of critical thinking disposition not varying in terms of departments.

Starting from these results, it can be stated that in the education faculties which take part in the research scope mathematics teaching students' critical thinking disposition is higher than the Turkish teaching students', that gender doesn't have a determiner role in students' critical thinking disposition and the education they receive for four years doesn't provide a significant contribution to students' critical disposition. In the light of these results it can be suggested that the education given in education faculties must be facilitated with the activities increasing students' critical thinking.

References

Aydın, M. Z. (1993) *Din öğretiminde yöntemler ve buldurma yöntemi*. Unpublished doctoral dissertation. Ankara: Ankara Üniversitesi Sosyal Bilimler Enstitüsü.

Brown, B. L. (1998). Applying constructivism in vacational and career education. İnformation series no. 378. ERIC *Clearinghouse on Adult, Career, and Vacational Education Center on Education and Trainig For Employment College of Education.* The Ohio State University. Columbus, OH

Chaffee, J. (1988). *Thinking critically.* USA. Boston: Houghton Mifflin Company

Dündar, S. (2009). Üniversite öğrencilerinin kişilik özellikleri ile problem çözme becerileri arasındaki ilişkinin incelenmesi. *Dokuz Eylül Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi.* Cilt:24, Sayı:2, Yıl:2009, ss.139-150. *http://www.iibf.deu.edu.tr/dergi/2009_2_09_dundar.pdf*

Ekinci, Öznur. (2009). *Öğretmen adaylarının empatik ve eleştirel düşünme eğilimlerinin incelenmesi.* Unpublished master's thesis. Adana: Çukurova Üniversitesi Sosyal Bilimler Enstitüsü

Ennis, R. H. (1991). Critical Thinking: A streamlined conception. *Teaching Philosophy*. 41 (1). 5-25.

Gelen, İ. (2002). Sınıf Öğretmenlerinin Sosyal Bilgiler Dersinde Düşünme Becerilerini Kazandırma Yeterliklerinin Değerlendirilmesi *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*. Cilt: 10. Sayı: 10

Gülveren, H. (2007). *Eğitim Fakültesi Öğrencilerinin Eleştirel Düşünme Becerileri ve Bu Becerileri Etkileyen Eleştirel Düşünme Faktörleri*. Unpublished doctoral dissertation. İzmir: Dokuz Eylül Üniversitesi Eğitim Bilimleri Enstitüsü.

Halpern, D. F. (1996). *Thought and knowledge: an introduction to critical thinking.* USA. Mahwah. New Jersey: Lawrence Erlbaum Associates. http://www.questia. com/PM.qst?a=o&d=57201004#

Kaya, Hülya. (1997). *Üniversite Öğrencilerinde Eleştirel Akıl Yürütme Gücü*. Unpublished doctoral dissertation. İstanbul: İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü.

Koray, Ö., Yaman, S., & Altunçekiç, A. (2004). Y*aratıcı ve eleştirel düşünmeye dayalı laboratuar yönteminin öğretmen adaylarının akademik başarı, problem çözme ve laboratuar tutum düzeylerine etkisi. XIII. Ulusal Eğitim Bilimleri Kurultayı.* 6-9 Temmuz 2004 İnönü Üniversitesi, Eğitim Fakültesi, Malatya.

Kökdemir, D. (2003). *Belirsizlik durumlarında karar verme ve problem çözme*. Unpublished doctoral dissertation. Ankara: Ankara Üniversitesi Sosyal Bilimler Enstitüsü.

Kürüm, D. (2003). *Eleştirel düşünme ve öğretimi. Anadolu Üniversitesi Eğitim Fakültesi Dergisi*. C.13, S.2, Eskişehir, 2003, s.141-158

MEB. (2002). *Öğretmen Yeterlikleri.* Öğretmen Yetiştirme ve Eğitimi Genel Müdürlüğü. Ankara: Milli Eğitim Basımevi

_____ (2005). *Temel Eğitime Destek Programı.* Ögretmenlik mesleği genel alan yeterlikleri çalışmasi pilot uygulama ulusal raporu. Ankara : Öğretmen Yetiştirme ve Eğitimi Genel Müdürlüğü

_____ (2008). *Sınıf Öğretmeni Özel Alan Yeterlikleri.* Ankara: Öğretmen Yetiştirme ve Eğitimi Genel Müdürlüğü

Şahinel, S. (2006). *Eleştirel Düşünme.* (Eğitimde Yeni Yönelimler, Editör: Özcan Demirel.). Ankara: Pegem A Yayıncılık

Şen. Ü. (2009). Türkçe öğretmeni adaylarının eleştirel düşünme tutumlarının çeşitli değişkenler açısından değerlendirilmesi. *Zeitschrift für die Welt der Türken / Journal of World of Turks*.Vol 1, No 2 (2009). http://diewelt-dertuerken.de/index.php/ZfWT/article/viewArticle/56

Tiwari, A., Lai, P., So, M., & Yuen, K. (2006). A comparison of the effects of problem-based learning and lecturing on the development of students' critical thinking. Blackwell Publishing Ltd. *Medical Education.* 40: 547–554